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Fungal lectins of fusarium and the dynamics of their formation

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Abstract

Research of 18 fungi isolates belonging to the Fusarium genus on the ability to produce lectins was carried out. Substantial differences in the activity of filamentous lectins depending on the fungi strain. Fungal strains F.solani and F.solani 6 differ from other strains by the ability to produce lectins with a high hem-agglutinating activity (titer 2048 and 4096 titer). Most of the mycelia lectins of the studied fungi were able to agglutinate all human AB0 blood groups. The exception were lectins of F.culmorum starin, the last specifically interacted with red blood cells of 2nd type and lectins of F.solani 9 strain - with red blood cells of 1st and 3rd types of human blood. The enzymatic treatment with trypsin, pronase and neuraminidase resulted in an increase in the ability of fungal lectins to agglutinate erythrocytes. The greatest sensitivity of the red blood cell to hemagglutination with lectins reaction was observed after pronase treatment. Thus, a 128-fold increase in the hemagglutinating activity of lectins was noted for F.solani 10 strain after red blood cells' pronase treatment. Research of filamentous lectins formation dynamics showed that the greatest production of hemagglutinin by all strains of Fusarium micromycetes was observed on the 8th day of cultivation, which corresponds to the stationary phase of population growth. The longest duration of lectins' maximum biosynthesis - 3 days (192 to 240 hours) was set for F.oxysporum 2 strain.

Keywords

Activity, Fungi, Fusarium, Lectins